General

Guideline Title

Catheterisation. Indwelling catheters in adults: urethral and suprapubic.

Bibliographic Source(s)

Geng V, Cobussen-Boekhorst H, Farrell J, Gea-SÃ¡nchez M, Pearce I, Schwennesen T, Vahr S, Vandewinkel C. Catheterisation: indwelling catheters in adults: urethral and suprapubic. Arnhem (The Netherlands): European Association of Urology Nurses (EAUN); 2012 Feb. 112 p. [198 references]

Guideline Status

This is the current release of the guideline.

Regulatory Alert

FDA Warning/Regulatory Alert

Note from the National Guideline Clearinghouse: This guideline references a drug(s) for which important revised regulatory and/or warning information has been released.

- December 14, 2016 – General anesthetic and sedation drugs : The U.S. Food and Drug Administration (FDA) is warning that repeated or lengthy use of general anesthetic and sedation drugs during surgeries or procedures in children younger than 3 years or in pregnant women during their third trimester may affect the development of children's brains. Consistent with animal studies, recent human studies suggest that a single, relatively short exposure to general anesthetic and sedation drugs in infants or toddlers is unlikely to have negative effects on behavior or learning. However, further research is needed to fully characterize how early life anesthetic exposure affects children's brain development.

Recommendations

Major Recommendations

Levels of evidence (LE) (1a-4) and grades of recommendation (GR) (A-C) are defined at the end of the "Major Recommendations" field.

Alternatives, Indications, and Contraindications

Alternatives to Placing an Indwelling Catheter

- Use of a male external catheter as an alternative to an indwelling urethral catheter in cooperative male patients without urinary retention or bladder outlet obstruction. (LE=3, GR=B)
- In appropriate patients use of a suprapubic catheter, male external or intermittent catheter are preferable to an indwelling urethral catheter. (Grabe et al., 2010) (LE=2b, GR=B)
- Consider other methods for management, including male external catheters or intermittent catheterisation, when appropriate. (Lo et al., 2008) (LE=1b, GR=A)
- Avoid use of urinary catheters in patients and nursing home residents for management of incontinence. (Gould et al., 2009) (LE=1b, GR=B)
- Intermittent catheterisation is preferable to indwelling urethral or suprapubic catheters in patients with bladder emptying dysfunction. (Gould et al., 2009) (LE=1b, GR=B)
- Intermittent catheterisation should be used in preference to an indwelling catheter if it is clinically appropriate and a practical option for the patient. (LE=1b, GR=A)
- There is a lower rate of infection in those with a suprapubic rather than urethral catheters despite the former being used for two weeks or longer. (Richard Wells Research Centre at Thames Valley University, 2003; Cottenden et al., 2009) (LE=4, GR=C)
- To insert a catheter only for the comfort of the nursing personnel is irresponsible. (LE=4, GR=C)

Equipment and Products

Catheter Material

Catheter Material

- Silicone catheters (100%) might be preferable to other catheter materials to reduce the risk of encrustation in long-term catheterised patients who have frequent obstruction of the catheter. (Gould et al., 2009) (LE=1b, GR=B)
- Catheter materials designed for long-term use (100% silicone, silicone coating or hydrogel coating) should be used where catheter is expected to be used long-term (more than 2 weeks). (Cottenden et al., 2009; Jahn et al., 2007) (Unresolved Issue)
- Silver alloy coated catheters may reduce the risk of catheter-associated bacteriuria in hospitalised patients during short-term catheterisation (less than 1 week). (Tenke et al., 2008; Schumm & Lam, 2008) (LE=1a, GR=B)
- Antibiotic-impregnated catheters may decrease the frequency of asymptomatic bacteriuria in hospitalised patients within 1 week. (LE=1a, GR=B)
- There is no evidence that antibiotic-impregnated catheters decrease symptomatic infection and therefore they cannot be recommended routinely. (Unresolved Issue)

Catheter Diameter Size and Length

- Unless otherwise clinically indicated, consider using the smallest bore catheter possible consistent with good drainage, to minimise bladder neck and urethral trauma. (Gould et al., 2009) (LE=1b, GR=B)
- In urethral catheterisation the female length catheter should not be used for males as inflation of the balloon within the urethra will result in severe trauma (Cottenden et al., 2009). Use male standard length for men in all situations. (LE=4, GR=C)
- Male standard length is recommended for female patients who are bedbound, immobile, clinically obese with fat thighs, critically ill and post-operative, and in emergency situations. (Addison et al., 2008) (LE=4, GR=C)

Tip Design

- For routine catheterisation, a straight-tipped catheter should be used. (LE=4, GR=C)
- The Tiemann/Coudé tip catheter can be used where male catheterisation is complicated. (LE=4, GR=C)
- Tiemann/Coudé tipped catheters should be inserted with the tip pointed upward. (LE=4, GR=C)

Balloon Size and Filling

- Always inflate the balloon according to the manufacturer's instructions. (LE=4, GR=C)
- The 30 ml balloon is designed specifically as a haemostat post urological procedure, and should not be used for routine catheterisation. (LE=4, GR=C)

Drainage Bags

- A closed drainage system should be maintained to reduce risk of catheter-associated infection. (Gould et al., 2009) (LE=1b, GR=B)
- Unnecessary disconnection of a closed drainage system should be avoided, but if it occurs the catheter and collecting system have to be

replaced using aseptic technique and sterile equipment. (Gould et al., 2009) (LE=1b, GR=B)
- Complex urinary drainage systems (utilising mechanisms for reducing bacterial entry such as antiseptic-release cartridges in the drain port) are not necessary for routine use. (Gould et al., 2009) (LE=1b, GR=B)
- In making urinary drainage bag selections particular attention should be focused on: the ability of the user to operate the tap, comfort, freedom from leakage and discretion. (Cottenden et al., 2009) (LE=4, GR=C)
- The patient's individual needs and personal preferences should determine the use of leg/suspension/attachments and position of where the bag is worn. (Cottenden et al., 2009) (LE=4, GR=C)
- Further research is needed on disinfection of the urinary bag and reusing the urinary bag. (Unresolved issue)
- Consult national policies for working with medical devices – and reuse of single material. (LE=4, GR=C)

Catheter Valves

- Catheter valves provide a well-accepted system of bladder emptying for suitable patients who are able to manipulate the valve mechanism and empty the bladder regularly. (Cottenden et al., 2009) (LE=4, GR=C)
- A combination of a valve during the day and free drainage at night through an open valve connected to a drainage bag could be an appropriate management strategy. (Cottenden et al., 2009) (LE=4, GR=C)
- Suitability for catheter valves should be assessed by a health care professional. (LE=4, GR=C)
- When a catheter valve is used a two to four-hourly release is recommended. (Sabbuba et al., 2005) (LE=2a, GR=B)
- Further research is needed about the use of catheter valves and urinary tract infection. (Unresolved issue)

Principles of Management of Nursing Intervention

Patient Preparation

- Verbal consent should be obtained from the patient for indwelling catheterisation before starting the procedure. (LE=4, GR=C)
- It is imperative that the health care professional has a good understanding of the principles of the aseptic procedure as this will help to reduce the risk of urinary tract infection (UTI). (Gould et al., 2009; Sedor & Mulholland, 1999) (LE=1b, GR=B)
- It is essential to ask the patient if they have any sensitivity for chlorhexidine (Parkes et al., 2009), lignocaine/lidocaine or latex before commencing the procedure. (LE=4, GR=C)

Urethral Catheter - Female and Male Insertion Procedure

The recommendations below are for catheterisation in males; recommendations with an * are also relevant for females.

- If resistance is felt at the external sphincter, increase the traction on the penis slightly and apply steady, gentle pressure on the catheter. Ask the patient to strain gently as if passing urine. (LE=4, GR=C)
- In case of inability to negotiate the catheter past the U-shaped bulbar urethra use a curved tip (Tiemann) catheter or hold the penis in an upright position to straighten out the curves. (LE=4, GR=C)
- Special catheters (e.g., Tiemann) need a special technique and should be attempted by those with experience and training. (Hadfield-Law, 2001; Doherty, 1999; Saint & Lipsky, 1999; Eberle, Winsemius, & Garibaldi, 1993) (LE=4, GR=C)
- Inserting a Tiemann tip, the tip has to point upward in the 12 o'clock position to facilitate passage around the prostate gland. (Smith, 2003) (LE=4, GR=C)
- When inserting the urethral catheter use a sterile single-use packet of lubricant jelly. (Gould et al., 2009)* (LE=4, GR=C)
- Routine use of antiseptic lubricants for inserting the catheter is not necessary. (Gould et al., 2009)* (LE=4, GR=C)
- A small lumen catheter can buckle/kink in the urethra; in some instance a slightly larger Ch size might help. (Eberle, Winsemius, & Garibaldi, 1993)* (LE=4, GR=C)
- Further research is needed for using the non-touch technique for indwelling urethral catheterisation.* (Unresolved issue)
- After the catheter has been inserted using aseptic technique, it should immediately be connected to the sterile bag, because an aseptic closed drainage system minimises the risk of catheter-associated urinary tract infections.* (LE=1a, GR=A)

Suprapubic Catheter Insertion Procedure

- Further research is needed for using the non-touch technique for suprapubic catheters. (Unresolved issue)

Catheter Care/Maintenance

Meatal Cleansing

- Routine daily hygiene (water and soap) is appropriate for meatal cleansing. (LE=1b, GR=B)

- Application of topical antibiotic cream to the meatus around the catheter does not reduce bacteriuria. (Hadfield-Law, 2001; Carstens & Bus, 2010; Madigan & Neff, 2003) (LE=1b, GR=B)

Care of Urethral Catheters

- Perform hand hygiene immediately before and after any manipulation of the catheter and system. Wear disposable gloves when handling the system. (LE=1b, GR=B)
- Maintain unobstructed urine flow. (Gould et al., 2009) (LE=1b, GR=B)
- Keep the catheter and collecting tube free from kinking. (LE=1b, GR=B)
- Keep the collecting bag below the level of the bladder at all times. Do not rest the bag on the floor. (LE=1b, GR=B)
- Empty the collecting bag regularly using a separate container for each patient; avoid splashing, and prevent contact of the drainage spigot with the non-sterile collecting container. (LE=1b, GR=B)

Care of the Suprapubic Catheter Site

- Always ensure good hand hygiene is performed prior to any intervention (Bond & Harris, 2005) and use protective equipment (e.g., gloves). (LE=4, GR=C)
- Suprapubic catheter site should be cleaned daily with soap and water. Excess cleansing is not required (Hadfield-Law, 2001; Carstens & Bus, 2010) and may increase the risk of infection. (LE=1b, GR=B)
- Observe the cystostomy site for signs of infection and over granulation. (LE=4, GR=C)
- Antimicrobial agents should not routinely or as prophylactic treatment be applied to the cystostomy site to prevent infection. (Carstens & Bus, 2010; Madigan & Neff, 2003) (LE=1b, GR=A)
- Dressings are best avoided; if a dressing is used to contain a discharge this should be undertaken with strict aseptic technique to protect against infection. (LE=4, GR=C)
- Wherever possible, patients should be encouraged to change their own dressings. (Addison et al., 2008) (LE=4, GR=C)

Observation and Management of Catheter Drainage

- Maintain unobstructed urine flow. (Gould et al., 2009) (LE=1b, GR=B)
- Keep the catheter and collecting tube free from kinking. (LE=1b, GR=B)
- Keep the collecting bag below the level of the bladder at all times. (LE=1b, GR=B)
- When emptying the collecting bag regularly use a separate, clean collecting container for each patient; avoid splashing, and prevent contact of the drainage spigot with the non-sterile collecting container. (LE=1b, GR=B)
- Unnecessary disconnection of a sealed (pre-connected) drainage system should be avoided but if it occurs the catheter and collecting system have to be replaced using aseptic technique and sterile equipment. (LE=1b, GR=B)
- Catheter and drainage tubes should never be disconnected unless for good clinical reason. (LE=2b, GR=B)
- Disinfect the catheter/collecting tube junction when connected. (LE=4, GR=C)
- Use of a urimeter which allows accurate measurement is recommended in intensive care patients. (Robert Koch Institut - Kommission für Krankenhaushygiene, 1999) (LE=2b, GR=B)
- Complex urinary drainage systems are not necessary for routine use. (LE=2b, GR=B)
- Extensive measures should also be taken to maintain unobstructed flow. (LE=1b, GR=B)
- Changing indwelling catheters or drainage bags at routine, fixed intervals is not recommended. Rather, catheters and drainage bags should be changed based on clinical indications such as infection, obstruction, or when the closed system is compromised. (Gould et al., 2009) (LE=1b, GR=B)

Stabilising of the Urethral Catheter

- It is important to secure the catheter after insertion to prevent movement and urethral traction. (Gould et al., 2009) (LE=1b, GR=B)
- It is important to stabilise the urinary catheter. (LE=1b, GR=A)
- In males secure urinary catheter to the abdomen and in females to the leg. (LE=4, GR=C)

Clamping or Not

- Further research is needed on the value of clamp-and-release. (Unsolved issue)

Changes of Urine Due to Food and Medication

- If urine changes odour or colour, check what could be the reason for this change. (LE=4, GR=C)

Constipation

- In case of constipation a bowel assessment should be made. (LE=4, GR=C)
- Educate the patient regarding the link between constipation and bypassing urine. (LE=4, GR=C)

Suprapubic Catheter Change

- A proper fixation for catheters is necessary to prevent tension and friction in urethra and bladder neck. (LE=4, GR=C)

Removal of Urethral and Suprapubic Catheters

- Minimise pain by allowing passive deflation of the balloon rather than applying active suction to the deflating channel. (Parkin et al., 2002) (LE=3, GR=B)

Catheter Complications

Catheter Associated Urinary Tract Infection (CAUTI)

The following have been shown to reduce the risk of CAUTI:

- Use of closed urinary drainage systems (Allepuz-Palau et al., 2004; Willson et al., 2009; Al-Habdan, et al., 2003; Johnson, Kuskowski, & Wilt, 2006) (LE=1a, GR=A)
- Use of silver coated catheters (Schumm & Lam, 2008; Dikon & Olah, 2006; Caudill, 2005; Davenport & Keeley, 2005; Davis, 2005; Gentry & Cope, 2005; Karchmer et al., 2000; Kitchen, 2006; Lai & Fontecchio, 2002; Matsui et al., 2004; Rupp et al., 2004; Beattie & Taylor, 2011) (decrease by between 17 and 85%) only for less than a week (LE=1b, GR=A)
- Use of a combination of a silver coated all silicone catheter and an antiseptic drainage system (Foster & Smith, 2005; Hutchins, 2006) (decrease by between 47% and 61%). (LE=2a, GR=A)
- Use of stop orders and daily assessment of the need for urethral catheterisation (Meddings et al., 2010) (decrease by 52%) (LE=1a, GR=A)
- Avoid drainage tube occlusion. (Rosenthal, Guzman, & Safdar, 2004) (LE=3, GR=A)
- Adhere to commonplace hand washing policy. (Rosenthal, Guzman, & Safdar, 2004) (LE=3, GR=B)
- Use small lumen catheters. (Cochran, 2007) (LE=4, GR=C)
- Avoid unnecessary catheterisation. (LE=1b, GR=A)
- Remove the catheter as soon as possible. (LE=1b, GR=B)
- Use urinary catheters in operative patients only if necessary, not routinely. (LE=1b, GR=B)

Catheter Blockage

- Patients with regular catheter blockage should be investigated for possible bladder stones. (LE=2b, GR=B)
- Intermittent drainage every 2-4 hours reduces the rate of catheter blockage compared to continuous flow. (LE=2b, GR=B)
- Optimise fluid intake and use lemon juice supplements to reduce the incidence and severity of catheter encrustation. (LE=2a, GR=B)
- Elevation of the catheter bag to eliminate pressure within the bladder urothelium may alleviate the risk of polypoidal inflammation with blockage as a result. (LE=4, GR=C)

Iatrogenic Trauma

- Traumatic cleaving and sphincteric disruption can be avoided by preventing catheter traction or preferably conversion to suprapubic catheterisation (SPC). (LE=4, GR=C)
- Training could make it possible to detect bowel interposed in the intended path of insertion. (LE=4, GR=C)
- To prevent trauma it is essential to ensure that there is some urine (preferably 300 ml) in the bladder. (LE=4, GR=C)

Bladder Spasm

- Educate the patient regarding the link between constipation and bladder spasm. (LE=4, GR=C)
- Bladder spasms are best managed with anticholinergic medication. (LE=3, GR=B)
- Intra-detrusor injections of botulinum toxin A may be administered if anticholinergic medications should fail. (LE=3, GR=B)

Bladder Pain

- Various studies have shown success in treating catheter associated bladder pain with anticholinergic medications, which reduce both the

incidence and severity of such pain. (Nazarko, 2007; Agarwal, et al., 2005) (LE=1b, GR=A)
- Ketamine has also been shown to significantly reduce the incidence of catheter related bladder pain at a dose of 250 mcg/kg. (Agarwal et al., 2006) (LE=2a, GR=B)
- It would appear that the incidence of bladder pain is less for suprapubic catheters than for urethral catheters but the explanation for this is currently unclear, although may be related to its more apical position which may minimise or avoid trigonal stimulation. (Niël-Weise & van den Broek, 2005) (LE=1a, GR=A)

Haematuria

- If haematuria fails to settle, irrigation through a 3-way catheter may be required or in more severe cases, formal bladder washout under general anaesthesia may be necessary. (LE=4, GR=C)
- Haematuria following suprapubic catheterisation may be resolved by irrigation through the SPC or via an additional urethral catheter. (LE=4, GR=C)

Inability to Remove Catheter

- In case of inability to remove catheter ultrasound guided transabdominal balloon puncture may be required. (LE=4, GR=C)
- In case of inability to remove the balloon catheter, it may be attempted to perforate the balloon using a fine-gauge metal guide wire passed through a flexible cystoscope. (LE=4, GR=C)
- Transrectal perforation of catheter balloons should be avoided for fear of sepsis. (LE=4, GR=C)

Bladder Washout, Irrigation, and Instillation

Washout Policies/Catheter Maintenance in Long-Term Urethral Catheterisation

- Routine bladder washouts are not beneficial. (Hooton et al., 2010; Hagen, Sinclair, & Cross, 2010) (LE=1a, GR=A)
- Bladder irrigation and instillation of maintenance solutions do not prevent catheter associated infections. However they may be recommended in special circumstances (e.g., management of blood clots). (Hooton et al., 2010; Hagen, Sinclair, & Cross, 2010) (LE=1b, GR=A)

Urinalysis

- For urine analyses; aspirate the urine from the needleless sampling port with a sterile syringe/cannula adapter after cleansing the port with a disinfectant. (Gould et al., 2009) (LE=1b, GR=B)
- Obtain large volumes of urine for special analyses (not culture) aseptically from the drainage bag. (Gould et al., 2009) (LE=1b, GR=B)

Infection Prevention

Fluid Intake

- The patient should be given sufficient fluid to maintain an output of 50-100 ml/h. (LE=2b, GR=B)
- To promote "Good fluid intake" should be advised to all catheter users to promote the flow of urine and prevent blockage. (LE=4, GR=C)

Cranberries

- Cranberry products are not effective in preventing UTI in people with indwelling catheters. (LE=1b, GR=B)

Hand Hygiene

- Perform hand hygiene immediately before and after insertion or any manipulation of the catheter device or site. (Gould et al., 2009) (LE=1b, GR=A)
- Carers and patients managing their own catheters must wash their hands before and after manipulation of the catheter. (Richard Wells Research Centre at Thames Valley University, 2003) (LE=1b, GR=A)
- Healthcare professionals should observe protocols on hand washing and the need to use disposable gloves between catheterised patients. (Tenke et al. 2008; Grabe et al., 2010) (LE=1b, GR=B)

Patient Quality of Life (QoL)

Sexuality and Body-Image

- It is recommended that sexual issues should be discussed in an early stage of catheterisation before relationship problems may have

occurred. (LE=4, GR=C)
- If possible, sometimes a sexual counsellor is an option to give advice and practical suggestions. (Colpman & Welford, 2004) (LE=4, GR=C)

Social Support

- Inform patients that joining a support organisation could be helpful. (LE=4, GR=C)

Patient and Caregiver Instruction on Dismissal: Advice and Information

- Patients should receive written and oral information about living with an indwelling catheter and its possible problems. (LE=4, GR=C)
- Patients should be informed about reimbursement for catheter equipment. (LE=4, GR=C)

Documentation

- Implement care plans for all patients with indwelling catheters. (LE=4, GR=C)
- In case of blocking problems a catheter change record of at least 3 catheter changes should be performed. (LE=4, GR=C)

Definitions:

Level of Evidence

Level	Type of Evidence
1a	Evidence obtained from meta-analysis of randomised trials
1b	Evidence obtained from at least one randomised trial
2a	Evidence obtained from one well-designed controlled study without randomisation
2b	Evidence obtained from at least one other type of well-designed quasi-experimental study
3	Evidence obtained from well-designed non-experimental studies, such as comparative studies, correlation studies and case reports
4	Evidence obtained from expert committee reports or opinions or clinical experience of respected authorities

Grade of Recommendation

Grade	Type of Evidence - Nature of Recommendations
A	Based on clinical studies of good quality and consistency addressing the specific recommendations and including at least one randomised trial
B	Based on well-conducted clinical studies, but without randomised clinical trials
C	Made despite the absence of directly applicable clinical studies of good quality

Clinical Algorithm(s)

The appendices of the original guideline document contain the following algorithms:

- Decision flow chart on indwelling catheterization
- Flow chart on indwelling urethral catheter removal
- Decision flow chart on draining of the catheter

Scope

Disease/Condition(s)

Diseases or conditions requiring indwelling urethral or suprapubic catheters

Note: A catheter is a thin hollow flexible tube which can be inserted in the bladder either through the urethra (urethral) or suprapubic channel to drain the urine.

Guideline Category

Management

Prevention

Treatment

Clinical Specialty

Nursing

Urology

Intended Users

Advanced Practice Nurses

Nurses

Guideline Objective(s)

- To improve current standards of urological nursing care by directly helping members of the European Association of Urology Nurses develop or update their expertise in indwelling urethral and suprapubic catheters in adults
- To help nurses assess the evidence-based management of catheter care and to incorporate the guidelines' recommendations into their clinical practice
- To support nurses and practitioners who are already assessed as competent in indwelling urethral and suprapubic catheters in adults

Target Population

Adults with diseases or conditions requiring indwelling urethral or suprapubic catheters

Interventions and Practices Considered

Treatment

1. Urethral catheterisation (transurethral indwelling catheterisation or urinary catheterisation)
2. Alternatives
    - Male external catheter
    - Suprapubic catheter
    - Intermittent catheterisation
3. Catheter materials (e.g., silicone, silver alloy coated, silicone coated, hydrogel coated)
4. Antibiotic-impregnated catheter
5. Equipment
    - Catheter material
    - Catheter diameter size and length
    - Tip design
    - Balloon size and filling
    - Drainage bags
    - Catheter valves

Management

1. Patient preparation
2. Insertion procedure
    - Urethral catheter - female and male
    - Suprapubic catheter
3. Catheter care/maintenance
4. Removal of urethral and suprapubic catheters
5. Addressing catheter complications
6. Bladder washout, irrigation and instillation
7. Infection prevention
8. Addressing patient quality of life (QoL)

Major Outcomes Considered

- Complications of catheterization (e.g., infection)
- Risk of catheter displacement
- Physical and psychological discomfort
- Patient quality of life

Methodology

Methods Used to Collect/Select the Evidence

Hand-searches of Published Literature (Primary Sources)

Hand-searches of Published Literature (Secondary Sources)

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

Literature Search

The information offered in this guideline was obtained through a systematic literature search and through review of current procedures undertaken in various member countries of the European Association of Urology Nurses (EAUN). All group members participated in the critical assessment of the scientific papers identified. Bibliographical databases consulted included EMBASE, Medline and the Cochrane library database CENTRAL. The search was based on the keywords (listed below). The question for which the references were searched was: "Is there any evidence for indwelling catheterisation for nursing interventions in different care situations such as preparation, insertion, or care of indwelling catheters as well as catheter materials or complications?" Both EMBASE and Medline were searched using both 'Free text' and the respective thesauri MeSH and EMTREE. The time frame covered in the searches was January 2000–September 2010. If a topic was not covered by the results of the search, earlier references were used. Additional search on bags, deflation of the balloon, valves, removal of the catheter and stabilisation was carried out by the Working Group.

Limitations of the Search

The search was performed in September 2010. In Medline and EMBASE the search results were limited to randomised controlled trials (RCTs), in CENTRAL to controlled clinical trials and to meta-analysis and systematic reviews. In all databases, output was limited to human studies and English language publications.

Search Keywords

- Activity of daily living
- Balloon

- Bladder instillation and MeSH term Intravesical administration
- Bladder washout/bladder lavage
- Catheter associated urinary tract infection
- Coping
- Cranberry
- Deflation
- Education
- Fluid balance
- Glycerine
- Indwelling catheter bladder
- Indwelling catheter urinary
- Indwelling urinary catheter
- Suprapubic catheterisation
- Information
- Nursing assessment (MeSH)
- Patient education
- Prevention of urinary tract infection
- Removal catheter
- Sexuality
- Silver coated catheters
- Social issues
- Stabilisation
- Urethral catheterisation and disinfection
- Urinary catheter
- Urinary catheter and complication
- Urinary catheter infection
- Urinary catheterisation
- Urinary catheterisation nursing
- Urinary drainage bag
- Urinary drainage system
- Urinary tract infection

Search Results

EAUN commissioned a company to do an initial search on catheterisation which resulted in a total of 1,086 abstracts from scientific publications. After reading the abstracts, 242 were left and full text articles of them were made available to the working group. It was a policy decision to restrict the search in this way, though the group were aware that more complex strategies were possible, and would be encouraged in the context of a formal systematic review. In the process of working with the articles new references were found and added to the reference list, if they were relevant for the topic and cited in the text. Additionally, scientific articles mentioned by the reviewers in November 2011 and considered useful by the working group, were included.

Number of Source Documents

Not stated

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Level of Evidence

Level	Type of Evidence
1a	Evidence obtained from meta-analysis of randomised trials
1b	Evidence obtained from at least one randomised trial
2a	Evidence obtained from one well-designed controlled study without randomisation
2b	Evidence obtained from at least one other type of well-designed quasi-experimental study
3	Evidence obtained from well-designed non-experimental studies, such as comparative studies, correlation studies and case reports
4	Evidence obtained from expert committee reports or opinions or clinical experience of respected authorities

Methods Used to Analyze the Evidence

Review of Published Meta-Analyses

Systematic Review

Description of the Methods Used to Analyze the Evidence

Whenever possible, the Guidelines Working Group have graded treatment recommendations using a three-grade recommendation system (A to C) and inserted levels of evidence to help readers assess the validity of the statements made. The aim of this practice is to ensure a clear transparency between the underlying evidence and a recommendation given. This system is further described in the "Rating Scheme for the Strength of Evidence" and the "Rating Scheme for the Strength of Recommendations" fields.

The recommendations provided in these documents are based on a rating system modified from that produced by the Oxford Centre for Evidence-based Medicine. Some of the literature was not easy to grade. If, however, the European Association of Urology Nurses Working Group thought the information would be useful in practice, it is ranked as level of evidence 4 and grade of recommendation C. Low level evidence indicates that no higher level evidence was found in the literature when writing this guideline, but cannot be regarded as an indication of the importance of the topic or recommendation for daily practice.

Methods Used to Formulate the Recommendations

Expert Consensus

Description of Methods Used to Formulate the Recommendations

The expert panel consisted of a multi-disciplinary team of nurse specialists and a urologist.

Rating Scheme for the Strength of the Recommendations

Grade of Recommendation

Grade	Type of Evidence - Nature of Recommendations
A	Based on clinical studies of good quality and consistency addressing the specific recommendations and including at least one randomised trial
B	Based on well-conducted clinical studies, but without randomised clinical trials
C	Made despite the absence of directly applicable clinical studies of good quality

Cost Analysis

A formal cost analysis was not performed and published cost analyses were not reviewed.

Method of Guideline Validation

External Peer Review

Internal Peer Review

Description of Method of Guideline Validation

A blinded review was carried out by specialised nurses and urologists in various countries. The Working Group revised the document based on the comments received. A final version was approved by the European Association of Urology Nurses (EAUN) Board and the European Association of Urology Executive responsible for EAUN activities.

Evidence Supporting the Recommendations

References Supporting the Recommendations

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Type of Evidence Supporting the Recommendations

The type of supporting evidence is identified and graded for each recommendation (see the "Major Recommendations" field).

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

Appropriate management of urethral and suprapubic catheters in adults

Potential Harms

Complications associated with catheters include urinary tract infection (UTI), trauma and inflammatory reactions, urethral stricture, calculi, hypospadias, false route, and possibly carcinoma of the bladder. These can result in one or more of the following symptoms occurring: pain, bypassing, blockage, catheter expulsion, and bleeding.

Chapter 7 of the original guideline document contains more detailed information on catheter complications.

Contraindications

Contraindications

Contraindications for Urethral Catheterisation

- Acute prostatitis
- Suspicion of urethral trauma

Contraindications for Suprapubic Catheterisation

- Known or suspected carcinoma of the bladder
- Suprapubic catheterisation is absolutely contraindicated in the absence of an easily palpable or ultrasonographically localised distended urinary bladder
- Previous lower abdominal surgery
- Coagulopathy (until the abnormality is corrected)
- Ascites
- Prosthetic devices in lower abdomen (e.g., hernia mesh)

The catheter valve is contraindicated in a patient with:

- Severe cognitive impairment (the patient must be able to recognise the need to empty the bladder through sensation or on a timed schedule)
- Overactive bladder syndrome; might cause urinary leakage
- Urethral reflux or renal impairment
- Small or limited bladder capacity; the valve would have to be opened very often
- Urinary tract infection
- Poor manual dexterity

Qualifying Statements

Qualifying Statements

The European Association of Urology Nurses (EAUN) Guidelines Working Group for indwelling catheters have prepared this guideline document to help nurses assess the evidence-based management of catheter care and to incorporate the guidelines' recommendations into their clinical practice. These guidelines are not meant to be proscriptive, nor will adherence to these guidelines guarantee a successful outcome in all cases. Ultimately, decisions regarding care must be made on a case-by-case basis by healthcare professionals after consultation with their patients using their clinical judgement, knowledge and expertise.

Limitations of Document

- The European Association of Urology Nurses acknowledge and accept the limitations of this document. It has to be emphasised that current guidelines provide information about the treatment of an individual patient according to a standardised approach. The information should be considered as providing recommendations without legal implications. The intended readership is the pan-European practising urology nurse and nurses working in a related field.
- Cost-effectiveness considerations and non-clinical questions are best addressed locally and therefore fall outside the remit of these guidelines. Other stakeholders, except patient representatives, have not been involved in producing this document.

Implementation of the Guideline

Description of Implementation Strategy

An implementation strategy was not provided.

Implementation Tools

Chart Documentation/Checklists/Forms

Clinical Algorithm

Resources

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Living with Illness

IOM Domain

Effectiveness

Patient-centeredness

Identifying Information and Availability

Bibliographic Source(s)

Geng V, Cobussen-Boekhorst H, Farrell J, Gea-SÃ¡nchez M, Pearce I, Schwennesen T, Vahr S, Vandewinkel C. Catheterisation: indwelling catheters in adults: urethral and suprapubic. Arnhem (The Netherlands): European Association of Urology Nurses (EAUN); 2012 Feb. 112 p. [198 references]

Adaptation

Not applicable: The guideline was not adapted from another source.

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Guideline Committee

European Association of Urology Nurses (EAUN) Guidelines Working Group

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Financial Disclosures/Conflicts of Interest

Disclosures

The European Association of Urology Nurses (EAUN) Guidelines Working Group members have provided disclosure statements of all relationships that might be a potential source of conflict of interest. The information has been stored in the European Association of Urology (EAU) database. This Guidelines document was developed with the financial support of the EAU.

The EAUN is a non-profit organisation and funding is limited to administrative assistance and travel and meeting expenses. No honoraria or other reimbursements have been provided.

Guideline Status

This is the current release of the guideline.

Guideline Availability

Electronic copies: Available from the European Association of Urology Nurses (EAUN) Web site .

Print copies: Available from the European Association of Urology (EAU), PO Box 30016, NL-6803, AA ARNHEM, The Netherlands. E-mail: eaun@uroweb.org and from the EAU webshop.

Availability of Companion Documents

Various resources, including catheter insertion procedures with equipment checklists, techniques for changing a suprapubic catheter, procedures for removing catheters, patient information about common problems with indwelling catheter equipment, and an example catheter change record, are available in the appendices to the original guideline document .

Patient Resources

None available

NGC Status

This NGC summary was completed by ECRI Institute on July 13, 2012. The information was verified by the guideline developer on August 17, 2012. This summary was updated by ECRI Institute on February 15, 2017 following the U.S. Food and Drug Administration advisory on general anesthetic and sedation drugs.

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